Northgate Stakeholders Group
Tuesday, January 24, 2006

30% Design Review
Summary of Design Team Recommendations for the Thornton Creek Water Quality Channel

Background

In October 2005, the Thornton Creek Water Quality Channel (TCWQC) project reached a major milestone of completing preliminary engineering and 30% Design. Based on new findings during preliminary engineering (primarily new flooding risks, poor structural soils and significantly higher cost estimates), the team recommended modifying the design to reduce flooding risk, maintain consistency with the Northgate Stakeholder values expressed in Advice #1 and reduce costs. The modified Hybrid design uses a terraced approach that includes two diversions – one at 3rd that treats approximately 20 acres of drainage and seasonal flow in an "Upper Cascade" on the Southern leg of the property, and a second diversion that sends water quality storms and year round flow from approximately 660 acres to the "Channel" on the Eastern leg of the property.

In October and November, SPU held a public review of the 30% design to gather input before developing permitting applications and 60% Design in 2006. The Design Review process included the following meeting dates:

30% Design Review Process

- Northgate Stakeholders – October 10th, 18th, and Nov 18th
- Northgate Community Forum – October 20th
- SPU Asset Management Committee, October 12th, 20th
- Seattle Design Commission, October 20th
- Design Team Review, December 7th through mid-January

Design Team Workshop Series

To address comments raised during the 30% Design Review process, SPU convened the Design Team in a series of workshops to collaboratively resolve issues before developing 60% Design. The objectives of the design team included:

1. Collectively identify significant issues to resolve during workshop process
2. Develop common understanding of preliminary engineering findings and technical assumptions
3. Collaboratively resolve significant issues raised during 30% design review and refine project design

Workshop Team

The Design Team includes the following core members, plus additional expertise as needed:

Miranda Maupin, Project Lead
Tom Fawthrop, Project Manager
Masako Lo, SPU Designer
Peggy Gaynor, Concept Development
Melanie Davies, Landscape Architecture
Greg Giraldo, Civil Engineering

In addition, SPU hired Olympic Associates to participate in the workshop series and conduct a peer review of cost assumptions and constructability issues. Olympic Associates findings are summarized in a separate technical memorandum.

Summary of Technical Assumptions
The Design Team spent several workshops reviewing the new technical assumptions, with a focus on the water quality design approach and geotechnical findings related to retaining walls.

Water Quality Assumptions

- Target flows and volumes – up to 13 cfs and 91% annual volume diverted
- The primary treatment function is considered to be modified bio-filtration
- Key design parameters for the water quality "Channel" include:
  - Dimensions - 300 feet and 30 feet wide, and
  - Max 10 in water depth (12 in with level spreaders) at water quality storm

Soils and Grade Assumptions

- Variable – should assume the worst (excavation, fill and retaining walls)
- Grades are constrained
  - 2-foot drop in channel profile
  - Horizontal dimensions constrained by underground pipe and adjacent streets, properties

Summary of Key Issues from Review Comments
The Design Team identified the key issues raised during the 30% Design Review process and organized the workshop series around the following main themes:

- Landscape design and pedestrian experience (including site access)
- Grading and retaining walls
- Water quality and channel design
- Constructability and cost estimates

Summary of Design Team Recommendations

Landscape Design and Pedestrian Experience
The Design Team identified the following key issues and recommendations related to landscape design and pedestrian experience.

Issues:

- Desire for access to site from 100th

- Greater understanding of qualities of pedestrian experience (urban, natural; water sounds and views, gathering spaces)

Recommendations:

- Provide a stairwell from 4th and 100th Ave into the site
- Enhance pedestrian experience through the following concepts:
    - Enhance formal, urban promenade along Lorig side and informal, natural aesthetic along ERA Care side of channel
    - Emphasize formal experience at entrances and central nodes with more informal experience in between
    - Create more open views
    - Ensure water views and water sounds
- Enhance plant groupings to create the following:
    - Create variability in the channel through planting
    - Create open views into channel
    - Emphasize formal and informal areas
    - Open views for security
- Conduct landscape design workshop in February with City Design, ERA Care and Lorig to coordinate paving, lighting and other pedestrian amenities

Grading and Retaining Walls

The team identified the following key issues and recommendations related to grading and retaining walls.

Issues:

- Examine earth wall constructability, alternatives and cost
- Increase variability in walls

Recommendations:

- Consider cast-in-place concrete walls for more formal areas
- Consider varying the batter (slope) of MSE/green walls in more informal areas

Water Quality and Channel Design

The team identified the following key issues and recommendations related to water quality performance and channel design.

Issues:

- Modify weir/level spreader design to create more variability in ponding and vegetation
- Use more natural construction for low-flow channel

Recommendations:

- Create three, 18-24 inch deep wetland weirs that provide ponded water and wetland vegetation extending 40-50 feet behind each weir. Weirs fashioned in concrete with aesthetic finish and 18-24" wide catwalk for maintenance access. Wetland weirs interspersed with swales to ensure total of 300 feet of bio-filtration.

- Use plants and gravel to define low-flow channel dimensions and maintain location and surface flow of water

Next Steps

The Design Team presented these recommendations to the SPU Executive Steering Committee on December 20, 2005. Northgate Stakeholder representatives attended and provided input. The Design Team, along with Olympic Associates, presents these recommendations and the Cost and Constructability Review to the full Northgate Stakeholder Group on January 24, 2006.

Next, SPU will be applying for permits in late January and early February aiming to begin construction in June 2006. SPU will provide an update to Stakeholders on cost estimates and 60% Design at the April meeting (to be scheduled.)